

(b) *Ditching demonstration.* The demonstration must assume that daylight hours exist outside the airplane and that all required crewmembers are available for the demonstration.

(1) If the certificate holder's manual requires the use of passengers to assist in the launching of liferafts, the needed passengers must be aboard the airplane and participate in the demonstration according to the manual.

(2) A stand must be placed at each emergency exit and wing with the top of the platform at a height simulating the water level of the airplane following a ditching.

(3) After the ditching signal has been received, each evacuee must don a life vest according to the certificate holder's manual.

(4) Each liferaft must be launched and inflated according to the certificate holder's manual and all other required emergency equipment must be placed in rafts.

(5) Each evacuee must enter a liferaft and the crewmembers assigned to each liferaft must indicate the location of emergency equipment aboard the raft and describe its use.

(6) Either the airplane, a mockup of the airplane, or a floating device simulating a passenger compartment must be used.

(i) If a mockup of the airplane is used, it must be a life-size mockup of the interior and representative of the airplane currently used by or proposed to be used by the certificate holder and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate that on the airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation.

(ii) If a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the airplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the airplane, to accommodate all persons participating in the demonstration.

#### APPENDIX C TO PART 125—ICE PROTECTION

If certification with ice protection provisions is desired, compliance with the following must be shown:

(a) The recommended procedures for the use of the ice protection equipment must be set forth in the Airplane Flight Manual.

(b) An analysis must be performed to establish, on the basis of the airplane's operational needs, the adequacy of the ice protection system for the various components of the airplane. In addition, tests of the ice protection system must be conducted to demonstrate that the airplane is capable of operating safely in continuous maximum and intermittent maximum icing conditions as described in appendix C of part 25 of this chapter.

(c) Compliance with all or portions of this section may be accomplished by reference, where applicable because of similarity of the designs, to analyses and tests performed by the applicant for a type certificated model.

#### APPENDIX D TO PART 125—AIRPLANE FLIGHT RECORDER SPECIFICATION

Parameters	Range	Accuracy sensor input to DFDR readout	Sampling interval (per second)	Resolution <sup>4</sup> read out
Time (GMT or Frame Counter) (range 0 to 4095, sampled 1 per frame).	24 Hrs .....	±0.125% Per Hour .....	0.25 (1 per 4 seconds).	1 sec.
Altitude .....	– 1,000 ft to max certificated altitude of aircraft.	±100 to ±700 ft (See Table 1, TSO-C51a).	1 .....	5' to 35' <sup>1</sup>
Airspeed .....	50 KIAS to V <sub>so</sub> , and V <sub>so</sub> to 1.2 V <sub>D</sub> .	±5%, ±3% .....	1 .....	1 kt.
Heading .....	360° .....	±2° .....	1 .....	0.5°
Normal Acceleration (Vertical)	– 3g to +6g .....	±1% of max range excluding datum error of ±5%.	8 .....	0.01g.
Pitch Attitude .....	±75° .....	±2° .....	1 .....	0.5°.
Roll Attitude .....	±180° .....	±2° .....	1 .....	0.5°.
Radio Transmitter Keying .....	On-Off (Discrete) .....	.....	1 .....	.....
Thrust/Power on Each Engine .....	Full range forward .....	±2% .....	1 .....	0.2% <sup>2</sup>
Trailing Edge Flap or Cockpit Control Selection.	Full range or each discrete position.	±3° or as pilot's Indicator .....	0.5 .....	0.5% <sup>2</sup>
Leading Edge Flap or Cockpit Control Selection.	Full range or each discrete position.	±3° or as pilot's indicator .....	0.5 .....	0.5% <sup>2</sup>
Thrust Reverser Position .....	Stowed, in transit, and reverse (Discrete).	.....	1 (per 4 seconds per engine).	.....

Parameters	Range	Accuracy sensor input to DFDR readout	Sampling interval (per second)	Resolution <sup>4</sup> read out
Ground Spoiler Position/Speed Brake Selection.	Full range or each discrete position.	±2% unless higher accuracy uniquely required.	1 .....	0.2% <sup>2</sup> .
Marker Beacon Passage .....	Discrete .....	.....	1 .....	.....
Autopilot Engagement .....	Discrete .....	.....	1 .....	.....
Longitudinal Acceleration .....	±1g .....	±1.5% max range excluding datum error of ±5%.	4 .....	0.01g
Pilot Input and/or Surface Position-Primary Controls (Pitch, Roll, Yaw) <sup>3</sup> .	Full range .....	±2° unless higher accuracy uniquely required.	1 .....	0.2% <sup>2</sup> .
Lateral Acceleration .....	±1g .....	±1.5% max range excluding datum error of ±5%.	4 .....	0.01g.
Pitch Trim Position .....	Full range .....	±3% unless higher accuracy uniquely required.	1 .....	0.3% <sup>2</sup>
Glideslope Deviation .....	±400 Microamps .....	±3% .....	1 .....	0.3% <sup>2</sup>
Localizer Deviation .....	±400 Microamps .....	±3% .....	1 .....	0.3% <sup>2</sup> .
AFCS Mode and Engagement Status.	Discrete .....	.....	1 .....	.....
Radio Altitude .....	– 20 ft to 2,500 ft .....	±2 Ft or ±3% Whichever is Greater Below 500 Ft and ±5% Above 500 Ft.	.....	1 ft + 5% <sup>2</sup> above 500'.
Master Warning .....	Discrete .....	.....	1 .....	.....
Main Gear Squat Switch Status	Discrete .....	.....	1 .....	.....
Angle of Attack (if recorded directly).	As installed .....	As installed .....	2 .....	0.3% <sup>2</sup> .
Outside Air Temperature or Total Air Temperature.	– 50 °C to +90 °C .....	±2 °C .....	0.5 .....	0.3 °C
Hydraulics, Each System Low Pressure.	Discrete .....	.....	0.5 .....	or 0.5% <sup>2</sup> .
Groundspeed .....	As Installed .....	Most Accurate Systems Installed (IMS Equipped Aircraft Only).	1 .....	0.2% <sup>2</sup> .

If additional recording capacity is available, recording of the following parameters is recommended. The parameters are listed in order of significance:

Drift Angle .....	When available. As installed.	As installed .....	4 .....	.....
Wind Speed and Direction .....	When available. As installed.	As installed .....	4 .....	.....
Latitude and Longitude .....	When available. As installed.	As installed .....	4 .....	.....
Brake pressure/Brake pedal position.	As installed .....	As installed .....	1 .....	.....
Additional engine parameters:				
EPR .....	As installed .....	As installed .....	1 (per engine) ..	.....
N <sup>1</sup> .....	As installed .....	As installed .....	1 (per engine) ..	.....
N <sup>2</sup> .....	As installed .....	As installed .....	1 (per engine) ..	.....
EGT .....	As installed .....	As installed .....	1 (per engine) ..	.....
Throttle Lever Position .....	As installed .....	As installed .....	1 (per engine) ..	.....
Fuel Flow .....	As installed .....	As installed .....	1 (per engine) ..	.....
TCAS:				
TA .....	As installed .....	As installed .....	1 .....	.....
RA .....	As installed .....	As installed .....	1 .....	.....
Sensitivity level (as selected by crew).	As installed .....	As installed .....	2 .....	.....
GPWS (ground proximity warning system).	Discrete .....	.....	1 .....	.....
Landing gear or gear selector position.	Discrete .....	.....	0.25 (1 per 4 seconds).	.....
DME 1 and 2 Distance .....	0–200 NM; .....	As installed .....	0.25 .....	1 mi.
Nav 1 and 2 Frequency Selection.	Full range .....	As installed .....	0.25 .....	.....

<sup>1</sup> When altitude rate is recorded. Altitude rate must have sufficient resolution and sampling to permit the derivation of altitude to 5 feet.

<sup>2</sup> Percent of full range.

<sup>3</sup> For airplanes that can demonstrate the capability of deriving either the control input on control movement (one from the other) for all modes of operation and flight regimes, the “or” applies. For airplanes with non-mechanical control systems (fly-by-wire) the “and” applies. In airplanes with split surfaces, suitable combination of inputs is acceptable in lieu of recording each surface separately.

<sup>4</sup> This column applies to aircraft manufactured after October 11, 1991.

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